

Please type a plus sign (+) inside this box → [+]

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE


Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|  |   |    |   |                          |  |                       |  |
|--|---|----|---|--------------------------|--|-----------------------|--|
| Substitute for form 1449A/PTO<br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(use as many sheets as necessary) |   |    |   | <b>Complete if Known</b> |  |                       |  |
|  |   |    |   | Application Number       |  | 10/056,055            |  |
|  |   |    |   | Filing Date              |  | January 28, 2002      |  |
|  |   |    |   | First Named Inventor     |  | Osamu NAKAMURA et al. |  |
|  |   |    |   | Group Art Unit           |  | 2811                  |  |
|  |   |    |   | Examiner Name            |  | Unassigned            |  |
| Sheet  | 1 | of | 1 | Attorney Docket Number   |  | 0756-2428             |  |

| U.S. PATENT DOCUMENTS             |                          |                      |                                      |   |   |   |
|-----------------------------------|--------------------------|----------------------|--------------------------------------|---|---|---|
| Examiner<br>Initials <sup>1</sup> | Cite<br>No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|                                   |                          | Number               | Kind Code <sup>2</sup><br>(if known) |   |   |   |
|                                   |                          |                      |                                      |   |   |   |
|                                   |                          |                      |                                      |   |   |   |
|                                   |                          |                      |                                      |   |   |   |
|                                   |                          |                      |                                      |   |   |   |
|                                   |                          |                      |                                      |   |   |   |
|                                   |                          |                      |                                      |   |   |   |
|                                   |                          |                      |                                      |   |   |   |

| FOREIGN PATENT DOCUMENTS          |                          |                         |                     |                                      |   |   |   |                |
|-----------------------------------|--------------------------|-------------------------|---------------------|--------------------------------------|---|---|---|----------------|
| Examiner<br>Initials <sup>1</sup> | Cite<br>No. <sup>1</sup> | Foreign Patent Document |                     |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T <sup>4</sup> |
|                                   |                          | Office <sup>3</sup>     | Number <sup>3</sup> | Kind Code <sup>3</sup><br>(if known) |   |   |   |                |
|                                   |                          |                         |                     |                                      |   |   |   |                |
|                                   |                          |                         |                     |                                      |   |   |   |                |
|                                   |                          |                         |                     |                                      |   |   |   |                |
|                                   |                          |                         |                     |                                      |   |   |   |                |
|                                   |                          |                         |                     |                                      |   |   |   |                |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS |                          |   |                |
|---|--------------------------|---|----------------|
| Examiner<br>Initials <sup>1</sup>                 | Cite<br>No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
| DHL   |                          | Kevin S. Jones et al., "Boron Diffusion Upon Annealing of Laser Thermal Processed Silicon," Ion Implantation Technology 2000, Conference on, 2000, pages 111-114  |                |
| DHL   |                          | D.J. Llewellyn et al., "Implantation and Annealing of Cu in InP for Electrical Isolation: Microstructural Characterisation," Optoelectronic and Microelectronic Materials and Devices Proceedings, 1996, pages 313-316  |                |
|   |                          |   |                |

|                       |   |                    |          |
|-----------------------|---|--------------------|----------|
| Examiner<br>Signature |  | Date<br>Considered | 03-26-04 |
|-----------------------|---|--------------------|----------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

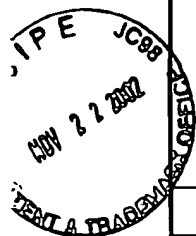
Please type a plus sign (+) inside this box → [ + ]

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.



|   |      |                        |                          |                       |
|---|------|------------------------|--------------------------|-----------------------|
| Substitute for form 1449A/PTO   |      |                        | <b>Complete if Known</b> |                       |
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(use as many sheets as necessary) |      |                        | Application Number       | 10/056,055            |
|   |      |                        | Filing Date              | January 28, 2002      |
|   |      |                        | First Named Inventor     | Osamu NAKAMURA et al. |
|   |      |                        | Group Art Unit           | 2811                  |
|   |      |                        | Examiner Name            | Unassigned            |
| Sheet 1   | of 3 | Attorney Docket Number | 0756-2428                |                       |

| U.S. PATENT DOCUMENTS          |                       |                      |                                   |   |  |
|--------------------------------|-----------------------|----------------------|-----------------------------------|---|--|
| Examiner Initials <sup>1</sup> | Cite No. <sup>1</sup> | U.S. Patent Document |                                   | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY |
|                                |                       | Number               | Kind Code <sup>2</sup> (if known) |   |  |
| DHL                            |                       | 6,426,276            | B1                                | Ohnuma et al.                                   | 07/30/2002                                       |
|                                |                       | 6,396,147            | B1                                | Adachi et al.                                   | 05/28/2002                                       |
|                                |                       | 6,461,943            | B1                                | Yamazaki et al.                                 | 10/08/2002                                       |
|                                |                       | 6,376,336            | B1                                | Buynoski  | 04/23/2002                                       |
|                                |                       | 6,255,195            | B1                                | Linn et al.                                     | 07/03/2001                                       |
|                                |                       | 4,371,403            |                                   | Ikubo et al.                                    | 02/01/1983                                       |
|                                |                       | 2001/0034088         | A1                                | Nakamura et al.                                 | 10/25/2001                                       |
|                                |                       | 5,932,893            |                                   | Miyanaga et al.                                 | 08/03/1999                                       |
|                                |                       | 6,022,458            |                                   | Ichikawa  | 02/08/2000                                       |
|                                |                       | 5,705,829            |                                   | Miyanaga et al.                                 | 01/06/1998                                       |
|                                |                       | 3,535,775            |                                   | Garfinkel et al.                                | 10/27/1970                                       |
|                                |                       | 4,477,308            |                                   | Gibson et al.                                   | 10/16/1984                                       |
|                                |                       | 4,534,820            |                                   | Mori et al.                                     | 08/13/1985                                       |
|                                |                       | 5,244,819            |                                   | Yue   | 09/14/1993                                       |
|                                |                       | 5,275,896            |                                   | Garofalo  | 01/04/1994                                       |
|                                |                       | 5,403,772            |                                   | Zhang et al.                                    | 04/04/1995                                       |
|                                |                       | 5,426,064            |                                   | Zhang et al.                                    | 06/20/1995                                       |
|                                |                       | 5,481,121            |                                   | Zhang et al.                                    | 01/02/1996                                       |
|                                |                       | 5,488,000            |                                   | Zhang et al.                                    | 01/30/1996                                       |
|                                |                       | 5,492,843            |                                   | Adachi et al.                                   | 02/20/1996                                       |
|                                |                       | 5,501,989            |                                   | Takayama et al.                                 | 03/26/1996                                       |
|                                |                       | 5,508,533            |                                   | Takemura  | 04/16/1996                                       |
|                                |                       | 5,534,716            |                                   | Takemura  | 07/09/1996                                       |
|                                |                       | 5,543,352            |                                   | Ohtani et al.                                   | 08/06/1996                                       |
|                                |                       | 5,563,426            |                                   | Zhang et al.                                    | 10/08/1996                                       |
|                                |                       | 5,569,610            |                                   | Zhang et al.                                    | 10/29/1996                                       |
|                                |                       | 5,569,936            |                                   | Zhang et al.                                    | 10/29/1996                                       |
|                                |                       | 5,580,792            |                                   | Zhang et al.                                    | 12/03/1996                                       |
|                                |                       | 5,585,291            |                                   | Ohtani et al.                                   | 12/17/1996                                       |
|                                |                       | 5,589,694            |                                   | Takayama et al.                                 | 12/31/1996                                       |

|                    |  |                 |          |
|--------------------|--|-----------------|----------|
| Examiner Signature |  | Date Considered | 03-26-04 |
|--------------------|--|-----------------|----------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box →



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|   |   |    |   |                          |                       |
|---|---|----|---|--------------------------|-----------------------|
| Substitute for form 1449A/PTO   |   |    |   | <b>Complete if Known</b> |                       |
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(use as many sheets as necessary) |   |    |   | Application Number       | 10/056,055            |
|   |   |    |   | Filing Date              | January 28, 2002      |
|   |   |    |   | First Named Inventor     | Osamu NAKAMURA et al. |
|   |   |    |   | Group Art Unit           | 2811                  |
|   |   |    |   | Examiner Name            | Unassigned            |
| Sheet   | 2 | of | 3 | Attorney Docket Number   | 0756-2428             |

| U.S. PATENT DOCUMENTS             |                          |                      |                                      |  |  |  |
|-----------------------------------|--------------------------|----------------------|--------------------------------------|--|--|--|
| Examiner<br>Initials <sup>1</sup> | Cite<br>No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant of Cited<br>Document | Date of Publication of Cited<br>Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant<br>Passages or Relevant Figures Appear |
|                                   |                          | Number               | Kind Code <sup>2</sup><br>(if known) |  |  |  |
| OKL                               |                          | 5,595,923            |                                      | Zhang et al.                                       | 01/21/1997   |  |
|                                   |                          | 5,595,944            |                                      | Zhang et al.                                       | 01/21/1997   |  |
|                                   |                          | 5,604,360            |                                      | Zhang et al.                                       | 02/18/1997   |  |
|                                   |                          | 5,605,846            |                                      | Ohtani et al.                                      | 02/25/1997   |  |
|                                   |                          | 5,606,179            |                                      | Yamazaki et al.                                    | 02/25/1997   |  |
|                                   |                          | 5,612,250            |                                      | Ohtani et al.                                      | 03/18/1997   |  |
|                                   |                          | 5,614,426            |                                      | Funada et al.                                      | 03/25/1997   |  |
|                                   |                          | 5,614,733            |                                      | Zhang et al.                                       | 03/25/1997   |  |
|                                   |                          | 5,616,506            |                                      | Takemura   | 04/01/1997   |  |
|                                   |                          | 5,620,910            |                                      | Teramoto   | 04/15/1997   |  |
|                                   |                          | 5,621,224            |                                      | Yamazaki et al.                                    | 04/15/1997   |  |
|                                   |                          | 5,624,851            |                                      | Takayama et al.                                    | 04/29/1997   |  |
|                                   |                          | 5,637,515            |                                      | Takemura   | 06/10/1997   |  |
|                                   |                          | 5,646,424            |                                      | Zhang et al.                                       | 07/08/1997   |  |
|                                   |                          | 5,654,203            |                                      | Ohtani et al.                                      | 08/05/1997   |  |
|                                   |                          | 5,656,825            |                                      | Kusumoto et al.                                    | 08/12/1997   |  |
|                                   |                          | 5,663,077            |                                      | Adachi et al.                                      | 09/02/1997   |  |
|                                   |                          | 5,696,386            |                                      | Yamazaki   | 12/09/1997   |  |
|                                   |                          | 5,696,388            |                                      | Funada et al.                                      | 12/09/1997   |  |
|                                   |                          | 5,712,191            |                                      | Nakajima et al.                                    | 01/27/1998   |  |
|                                   |                          | 5,744,824            |                                      | Kousai et al.                                      | 04/28/1998   |  |
|                                   |                          | 5,843,225            |                                      | Takayama et al.                                    | 12/01/1998   |  |
|                                   |                          | 5,677,549            |                                      | Takayama et al.                                    | 10/14/1997   |  |

| FOREIGN PATENT DOCUMENTS          |                          |                         |                     |                                      |  |  |   |
|-----------------------------------|--------------------------|-------------------------|---------------------|--------------------------------------|--|--|---|
| Examiner<br>Initials <sup>1</sup> | Cite<br>No. <sup>1</sup> | Foreign Patent Document |                     |                                      | Name of Patentee or<br>Applicant of Cited Document | Date of Publication of Cited<br>Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant Passages or<br>Relevant Figures Appear |
|                                   |                          | Office <sup>3</sup>     | Number <sup>4</sup> | Kind Code <sup>2</sup><br>(if known) |  |  |   |
| OKL                               |                          | JP                      | 07-130652           |                                      |  | 05/19/1995   | Abstract  |
| OKL                               |                          | JP                      | 08-078329           |                                      |  | 03/22/1996   | Abstract  |

|                       |  |                    |          |
|-----------------------|--|--------------------|----------|
| Examiner<br>Signature |  | Date<br>Considered | 03-26-04 |
|-----------------------|--|--------------------|----------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box —



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it contains a valid OMB control number.

|   |                        |                          |                       |
|---|------------------------|--------------------------|-----------------------|
| Substitute for form 1449A/PTO   |                        | <b>Complete if Known</b> |                       |
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(use as many sheets as necessary) |                        | Application Number       | 10/056,055            |
|   |                        | Filing Date              | January 28, 2002      |
|   |                        | First Named Inventor     | Osamu NAKAMURA et al. |
|   |                        | Group Art Unit           | 2811                  |
|   |                        | Examiner Name            | Unassigned            |
| Sheet 3 of 3  | Attorney Docket Number | 0756-2428                |                       |

| FOREIGN PATENT DOCUMENTS       |                       |                         |                     |   |  |   |
|--------------------------------|-----------------------|-------------------------|---------------------|---|--|---|
| Examiner Initials <sup>1</sup> | Cite No. <sup>1</sup> | Foreign Patent Document |                     | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|                                |                       | Office <sup>2</sup>     | Number <sup>3</sup> | Kind Code <sup>4</sup> (if known)               |  |   |
| DHL                            |                       | JP                      | 09-074207           |   | 03/18/1997                                       | Full  |
|                                |                       | JP                      | 2000-260777         |   | 09/22/2000                                       | Abstract  |
|                                |                       | JP                      | 2001-210828         |   | 08/03/2001                                       | Abstract  |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS |                       |   |                |
|---|-----------------------|---|----------------|
| Examiner Initials <sup>1</sup>                    | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
| DHL   |                       | U.S. Patent Application Serial No. 10/097,641, including specification, drawings and filing receipt, "Method of Manufacturing a Semiconductor Device", Shunpei YAMAZAKI et al., filed March 15, 2002.   |                |
|   |                       | U.S. Patent Application Serial No. 10/072,931, including specification, drawings and filing receipt, "Method of Manufacturing a Semiconductor Device", Shunpei YAMAZAKI et al., filed February 12, 2002.  |                |
|   |                       | U.S. Patent Application Serial No. 10/074,050, including specification, drawings and filing receipt, "Method of Manufacturing a Semiconductor Device", Shunpei YAMAZAKI et al., filed February 14, 2002.  |                |
|   |                       | U.S. Patent Application Serial No. 10/051,064, including specification, drawings and filing receipt, "Semiconductor Device and Method of Manufacturing the Same", filed January 18, 2002.   |                |
|   |                       | U.S. Patent Application Serial No. 10/066,542, including specification, drawings and filing receipt, "Semiconductor Device and Method for Manufacturing the Same", filed February 5, 2002.  |                |
|   |                       | U.S. Patent Application Serial No. 10/020,961, including specification, drawings and filing receipt, "Method of Manufacturing Semiconductor Device and Semiconductor Device", filed December 19, 2001.  |                |
|   |                       | M. Miyake et al., "Characteristics of Buried-Channel pMOS Devices with Shallow Counter-Doped Layers Fabricated Using Channel Preamorphization", IEEE Transactions on Electron Devices, Vol. 43, No. 3, March 1996, pp. 444-449.                                 |                |
|   |                       | L. S. Lee et al., "Argon Ion-Implantation on Polysilicon or Amorphous-Silicon for Boron Penetration Suppression in p+ pMOSFET", IEEE Transactions on Electron Devices, Vol. 45, No. 8, August 1998, pp. 1737-1744.  |                |

|                    |  |                 |          |
|--------------------|--|-----------------|----------|
| Examiner Signature |  | Date Considered | 03-26-04 |
|--------------------|--|-----------------|----------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → (+)

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|   |    |                          |                       |
|---|----|--------------------------|-----------------------|
| Substitute for form 1449A/PTO   |    | <b>Complete if Known</b> |                       |
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(use as many sheets as necessary) |    | Application Number       | 10/056,055            |
|   |    | Filing Date              | January 28, 2002      |
|   |    | First Named Inventor     | Osamu NAKAMURA et al. |
|   |    | Group Art Unit           | 2811                  |
|   |    | Examiner Name            | Unassigned            |
| Sheet   | of | Attorney Docket Number   | 0756-2428             |

| U.S. PATENT DOCUMENTS          |                       |                      |                                      |   |   |   |
|--------------------------------|-----------------------|----------------------|--------------------------------------|---|---|---|
| Examiner Initials <sup>1</sup> | Cite No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|                                |                       | Number               | Kind Code <sup>2</sup><br>(if known) |   |   |   |
| DHL                            |                       | 6,162,704            |                                      | Yamazaki et al.                                 | 12/19/00  |   |
| DHL                            |                       | 6,180,439            |                                      | Yamazaki et al.                                 | 01/30/01  |   |
| <del>_____</del>               |                       |                      |                                      |   |   |   |
| <del>_____</del>               |                       |                      |                                      |   |   |   |
| <del>_____</del>               |                       |                      |                                      |   |   |   |
| <del>_____</del>               |                       |                      |                                      |   |   |   |
| <del>_____</del>               |                       |                      |                                      |   |   |   |
| <del>_____</del>               |                       |                      |                                      |   |   |   |
| <del>_____</del>               |                       |                      |                                      |   |   |   |
| <del>_____</del>               |                       |                      |                                      |   |   |   |

RECEIVED

JUN 20 2002

TECH CENTER 2800

| FOREIGN PATENT DOCUMENTS       |                       |                         |                                   |   |   |   |                |
|--------------------------------|-----------------------|-------------------------|-----------------------------------|---|---|---|----------------|
| Examiner Initials <sup>1</sup> | Cite No. <sup>1</sup> | Foreign Patent Document |                                   | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T <sup>3</sup> |
|                                |                       | Office <sup>3</sup>     | Number <sup>4</sup><br>(if known) |   |   |   |                |
| <del>_____</del>               |                       |                         |                                   |   |   |   |                |
| <del>_____</del>               |                       |                         |                                   |   |   |   |                |
| <del>_____</del>               |                       |                         |                                   |   |   |   |                |
| <del>_____</del>               |                       |                         |                                   |   |   |   |                |
| <del>_____</del>               |                       |                         |                                   |   |   |   |                |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS |                       |   |                |
|---|-----------------------|---|----------------|
| Examiner Initials <sup>1</sup>                    | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>3</sup> |
| DM  |                       | Specification and drawings of Application Serial No. 08/784,293 filed January 16, 1997 entitled "Fabrication Method of Semiconductor Device," along with pending claims as of June 7, 2002  |                |
| <del>_____</del>                                  |                       |   |                |
| <del>_____</del>                                  |                       |   |                |

|                    |                    |                 |          |
|--------------------|--------------------|-----------------|----------|
| Examiner Signature | <i>[Signature]</i> | Date Considered | 03-28-04 |
|--------------------|--------------------|-----------------|----------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and

Form PTO-1449  
(Rev. 8-83)

APR 03 2002

U.S. Department of Commerce  
Patent and Trademark Office

Atty Docket 0756-2428

Serial No. 10/056,055

## INFORMATION DISCLOSURE STATEMENT

Applicants: Osamu NAKAMURA et al.

Filing Date: January 28, 2002

Group Art Unit: 2811

## U.S. PATENT DOCUMENTS

| Examiner Initial | Document Number | Date       | Name            | Class | Subclass | Filing Date (if appropriate) |
|------------------|-----------------|------------|-----------------|-------|----------|------------------------------|
| DHL              | 5,529,937       | 06/25/1996 | Zhang et al.    |       |          |                              |
|                  | 5,608,232       | 03/04/1997 | Yamazaki et al. |       |          |                              |
|                  | 5,639,698       | 06/17/1997 | Yamazaki et al. |       |          |                              |
|                  | 5,700,333       | 12/23/1997 | Yamazaki et al. |       |          |                              |
|                  | 5,773,327       | 06/30/1998 | Yamazaki et al. |       |          |                              |
|                  | 5,814,540       | 09/29/1998 | Takemura et al. |       |          |                              |
|                  | 5,869,363       | 02/09/1999 | Yamazaki et al. |       |          |                              |
|                  | 5,888,858       | 03/30/1999 | Yamazaki et al. |       |          |                              |
|                  | 5,893,730       | 04/13/1999 | Yamazaki et al. |       |          |                              |
|                  | 5,897,347       | 04/27/1999 | Yamazaki et al. |       |          |                              |
|                  | 5,915,174       | 06/22/1999 | Yamazaki et al. |       |          |                              |
|                  | 5,949,115       | 09/07/1999 | Yamazaki et al. |       |          |                              |
|                  | 5,956,579       | 09/21/1999 | Yamazaki et al. |       |          |                              |
|                  | 5,961,743       | 10/05/1999 | Yamazaki et al. |       |          |                              |
|                  | 5,977,559       | 11/02/1999 | Zhang et al.    |       |          |                              |
|                  | 5,985,740       | 11/16/1999 | Yamazaki et al. |       |          |                              |
|                  | 6,027,987       | 02/22/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,048,758       | 04/11/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,063,654       | 05/16/2000 | Ohtani          |       |          |                              |
|                  | 6,066,518       | 05/23/2000 | Yamazaki        |       |          |                              |
|                  | 6,071,764       | 06/06/2000 | Zhang et al.    |       |          |                              |
|                  | 6,071,766       | 06/06/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,072,193       | 06/06/2000 | Ohnuma et al.   |       |          |                              |
|                  | 6,077,731       | 06/20/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,077,758       | 06/20/2000 | Zhang et al.    |       |          |                              |
|                  | 6,084,247       | 07/04/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,087,679       | 07/11/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,093,934       | 07/25/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,100,562       | 08/08/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,111,557       | 08/29/2000 | Koyama et al.   |       |          |                              |

Examiner

Kang, Donghee

Date Considered

03-26-04

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

3/28/2002

Form PTO-1449  
(Rev. 8-83)

APR 03 2002

U.S. Department of Commerce  
Patent and Trademark Office

Atty Docket 0756-2428

Serial No. 10/056,055

## INFORMATION DISCLOSURE STATEMENT

Applicants: Osamu NAKAMURA et al.

Filing Date: January 28, 2002

Group Art Unit: 2811

## U.S. PATENT DOCUMENTS

| Examiner Initial | Document Number | Date       | Name            | Class | Subclass | Filing Date (if appropriate) |
|------------------|-----------------|------------|-----------------|-------|----------|------------------------------|
| DHIC             | 6,121,660       | 09/19/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,133,073       | 10/17/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,133,075       | 10/17/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,133,119       | 10/17/2000 | Yamazaki        |       |          |                              |
|                  | 6,153,445       | 11/28/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,156,590       | 12/05/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,156,628       | 12/05/2000 | Ohnuma et al.   |       |          |                              |
|                  | 6,160,268       | 12/12/2000 | Yamazaki        |       |          |                              |
|                  | 6,162,704       | 12/19/2000 | Yamazaki et al. |       |          |                              |
|                  | 6,168,980       | 01/02/2001 | Yamazaki et al. |       |          |                              |
|                  | 6,184,559       | 02/06/2001 | Hayakawa et al. |       |          |                              |
|                  | 6,194,255       | 02/27/2001 | Hiroki et al.   |       |          |                              |
|                  | 6,197,624       | 03/06/2001 | Yamazaki        |       |          |                              |
|                  | 6,201,585       | 03/13/2001 | Takano et al.   |       |          |                              |
|                  | 6,204,101       | 03/20/2001 | Yamazaki et al. |       |          |                              |
|                  | 6,204,154       | 03/20/2001 | Zhang et al.    |       |          |                              |
|                  | 6,207,969       | 03/27/2001 | Yamazaki        |       |          |                              |
|                  | 6,218,219       | 04/17/2001 | Yamazaki et al. |       |          |                              |
|                  | 6,225,152       | 05/01/2001 | Yamazaki et al. |       |          |                              |
|                  | 6,232,205       | 05/15/2001 | Ohtani          |       |          |                              |
|                  | 6,232,621       | 05/15/2001 | Yamazaki et al. |       |          |                              |
|                  | 6,242,290       | 06/05/2001 | Nakajima et al. |       |          |                              |
|                  | 6,251,712       | 06/26/2001 | Tanaka et al.   |       |          |                              |
|                  | 6,287,900       | 09/11/2001 | Yamazaki et al. |       |          |                              |
|                  | 6,291,275       | 09/18/2001 | Yamazaki et al. |       |          |                              |
|                  | 6,294,441       | 09/25/2001 | Yamazaki        |       |          |                              |
|                  | 6,300,659       | 10/09/2001 | Zhang et al.    |       |          |                              |
|                  | 6,303,415       | 10/16/2001 | Yamazaki        |       |          |                              |
|                  | 6,303,963       | 10/16/2001 | Ohtani et al.   |       |          |                              |
|                  | 6,307,214       | 10/23/2001 | Ohtani et al.   |       |          |                              |

Examiner

Kang, Donghee

Date Considered

03-26-04

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

03/28/2002

|  |                 |  |                 |                                   |          |                              |  |
|--|-----------------|--|-----------------|-----------------------------------|----------|------------------------------|--|
| Form PTO-1449<br>(Rev. 8-83)   |                 | U.S. Department of Commerce<br>Patent and Trademark Office |                 | Atty Docket 0756-2428             |          | Serial No. 10/056,055        |  |
| INFORMATION DISCLOSURE STATEMENT<br>OIPE<br>APR 03 2002<br>PATENT & TRADEMARK OFFICE   |                 |  |                 | Applicants: Osamu NAKAMURA et al. |          |                              |  |
|  |                 |  |                 | Filing Date: January 28, 2002     |          | Group Art Unit: 2811         |  |
| <b>U.S. PATENT DOCUMENTS</b>   |                 |  |                 |                                   |          |                              |  |
| Examiner Initial   | Document Number | Date   | Name            | Class                             | Subclass | Filing Date (if appropriate) |  |
| DMU  | 6,316,789       | 11/13/2001   | Yamazaki et al. |                                   |          |                              |  |
| DMU  | 6,316,810       | 11/13/2001   | Yamazaki et al. |                                   |          |                              |  |
| <b>FOREIGN PATENT DOCUMENTS</b>  |                 |  |                 |                                   |          |                              |  |
| Examiner Initial   | Document Number | Date   | Country         | Class                             | Subclass | Translation<br>Yes No        |  |
| DMU  | 05-109737       | 04/30/1993   | JP              |                                   |          | Full Eng                     |  |
| RECEIVED<br>APR - 4, 2002<br>TECHNOLOGY CENTER 2800  |                 |  |                 |                                   |          |                              |  |
| Examiner <i>Kang, Donglin</i>  |                 |  |                 | Date Considered <i>03-26-04</i>   |          |                              |  |
| *EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |                 |  |                 |                                   |          |                              |  |

03/28/2002



Please type a plus sign (+) inside this box → [ + ]

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|  |  |  |  |                          |  |  |  |
|--|--|--|--|--------------------------|--|--|--|
| Substitute for form 1449A/PTO<br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(use as many sheets as necessary) |  |  |  | <b>Complete if Known</b> |  |  |  |
| Application Number   |  |  |  | January 28, 2002         |  |  |  |
| Filing Date  |  |  |  | Osamu NAKAMURA et al.    |  |  |  |
| First Named Inventor   |  |  |  | Group Art Unit           |  |  |  |
| Examiner Name  |  |  |  | Attorney Docket Number   |  |  |  |
| Sheet 1 of 1   |  |  |  | 740756-2428              |  |  |  |

| U.S. PATENT DOCUMENTS          |                       |                      |                                      |   |   |   |  |
|--------------------------------|-----------------------|----------------------|--------------------------------------|---|---|---|--|
| Examiner Initials <sup>1</sup> | Cite No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |  |
|                                |                       | Number               | Kind Code <sup>2</sup><br>(if known) |   |   |   |  |
|                                |                       | 6,285,042            |                                      | Ohtani et al.                                   | 09/04/2001  |   |  |
|                                |                       | 6,165,824            |                                      | Takano et al.                                   | 12/26/2000  |   |  |
|                                |                       | 5,789,284            |                                      | Yamazaki et al.                                 | 08/04/1998  |   |  |
|                                |                       | 5,923,962            |                                      | Ohtani et al.                                   | 07/13/1999  |   |  |
|                                |                       | 5,643,826            |                                      | Ohtani et al.                                   | 07/01/1997  |   |  |
|                                |                       |                      |                                      |   |   |   |  |
|                                |                       |                      |                                      |   |   |   |  |
|                                |                       |                      |                                      |   |   |   |  |
|                                |                       |                      |                                      |   |   |   |  |
|                                |                       |                      |                                      |   |   |   |  |
|                                |                       |                      |                                      |   |   |   |  |

| FOREIGN PATENT DOCUMENTS       |                       |                         |   |   |   |   |  |                |
|--------------------------------|-----------------------|-------------------------|---|---|---|---|--|----------------|
| Examiner Initials <sup>1</sup> | Cite No. <sup>1</sup> | Foreign Patent Document |   | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |  | T <sup>3</sup> |
|                                |                       | Office <sup>2</sup>     | Number <sup>2</sup><br>Kind Code <sup>2</sup><br>(if known) |   |   |   |  |                |
|                                |                       | Japan                   | 07-183540   | Otani et al.                                    | 07/21/1995  |   |  | Abstract       |
|                                |                       | Japan                   | 3032801   | Takano et al.                                   | 02/18/2000  |   |  | Abstract       |
|                                |                       | Europe                  | 0 651 431 A2  | Ohtani et al.                                   | 01/31/1994  |   |  | Full           |
|                                |                       |                         |   |   |   |   |  |                |
|                                |                       |                         |   |   |   |   |  |                |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS |                       |   |                |
|---|-----------------------|---|----------------|
| Examiner Initials <sup>1</sup>                    | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>3</sup> |
|   |                       |   |                |
|   |                       |   |                |
|   |                       |   |                |

|                    |  |                 |          |
|--------------------|--|-----------------|----------|
| Examiner Signature |  | Date Considered | 03-26-04 |
|--------------------|--|-----------------|----------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Please type a plus sign (+) inside this box ☐ (+)

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE


Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|  |            |    |   |                          |                       |
|--|------------|----|---|--------------------------|-----------------------|
| Substitute for form 1449A/PTO<br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(use as many sheets as necessary) |            |    |   | <i>Complete if Known</i> |                       |
|  |            |    |   | Application Number       | 10/056,055            |
|  |            |    |   | Filing Date              | January 28, 2002      |
|  |            |    |   | First Named Inventor     | Osamu NAKAMURA et al. |
|  |            |    |   | Group Art Unit           | 2811                  |
| Examiner Name  | Unassigned |    |   |                          |                       |
| Sheet  | 1          | of | 1 | Attorney Docket Number   | 0756-2428             |

| U.S. PATENT DOCUMENTS          |                       |                      |                                      |   |   |   |
|--------------------------------|-----------------------|----------------------|--------------------------------------|---|---|---|
| Examiner Initials <sup>1</sup> | Cite No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|                                |                       | Number               | Kind Code <sup>2</sup><br>(if known) |   |   |   |
|                                |                       |                      |                                      |   |   |   |
|                                |                       |                      |                                      |   |   |   |
|                                |                       |                      |                                      |   |   |   |
|                                |                       |                      |                                      |   |   |   |
|                                |                       |                      |                                      |   |   |   |
|                                |                       |                      |                                      |   |   |   |
|                                |                       |                      |                                      |   |   |   |

| FOREIGN PATENT DOCUMENTS       |                       |                         |                     |                                      |   |   |   |                |
|--------------------------------|-----------------------|-------------------------|---------------------|--------------------------------------|---|---|---|----------------|
| Examiner Initials <sup>1</sup> | Cite No. <sup>1</sup> | Foreign Patent Document |                     |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T <sup>4</sup> |
|                                |                       | Office <sup>3</sup>     | Number <sup>3</sup> | Kind Code <sup>2</sup><br>(if known) |   |   |   |                |
|                                |                       |                         |                     |                                      |   |   |   |                |
|                                |                       |                         |                     |                                      |   |   |   |                |
|                                |                       |                         |                     |                                      |   |   |   |                |
|                                |                       |                         |                     |                                      |   |   |   |                |
|                                |                       |                         |                     |                                      |   |   |   |                |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS |                       |   |                |
|---|-----------------------|---|----------------|
| Examiner Initials <sup>1</sup>                    | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
| nm  |                       | Kevin S. Jones et al., "Boron Diffusion Upon Annealing of Laser Thermal Processed Silicon," Ion Implantation Technology 2000, Conference on, 2000, pages 111-114  |                |
| nm  |                       | D.J. Llewellyn et al., "Implantation and Annealing of Cu in InP for Electrical Isolation: Microstructural Characterisation," Optoelectronic and Microelectronic Materials and Devices Proceedings, 1996, pages 313-316  |                |
|   |                       |   |                |

|                    |   |                 |          |
|--------------------|---|-----------------|----------|
| Examiner Signature |  | Date Considered | 03-26-02 |
|--------------------|---|-----------------|----------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.